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Regulatory principles for markets affected by NGA investments

KPN's response to the ERG's Consultation Document

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0 Introduction

We welcome this ERG initiative to set out current thinking on NGA roll-out and the regulatory issues which it raises. The consultation document provides some useful evidence and initial thoughts on regulatory problems which will stimulate thinking and debate. We also welcome the ERG's proposal to develop the thinking in the consultation document further so as to produce an "ERG common position on regulatory principles of NGA" which will provide guidance to individual NRAs as they start to deal with the regulatory problems raised by NGA.

Our response contains no confidential information and may be made public via ERG's website.

1 All IP and main points of view

1.1 An open wholesale strategy

KPN has chosen an open wholesale strategy regarding it's ALL-IP network, whether access is regulated or not. We offer access on non-discriminatory terms in order to make our wholesale products attractive to our wholesale customers. The wholesale approach of the All IP programme is market driven and is a response to increasing infrastructure competition by cable networks. Also the decision to invest in the ALL-IP network is triggered by upcoming alternative networks.

KPN offers a number of wholesale services on a commercial basis:

- Sub loop unbundling (SLU) including collocation in the street cabinets;
- A backhaul service supporting the SLU service;
- Wholesale broadband access (WBA) services on three levels in the network (national, regional and local or the metre core location);
- New MDF access at the Metro Core locations.

The WBA services are a type of bitstream access services and are offered in several capacities, speeds and quality of service. The services can be found on the web site of KPN Wholesale[1].

Wholesale customers can buy a mix of our wholesale services. In areas where it is viable they can make use of our SLU services and in other areas they can make use of WBA services, following their own business strategy. KPN will also maintain the offer of MDF access in metro core locations. KPN is now discussing with other operators, which currently use MDF access, how and when their MDF access might be migrated towards the new wholesale services of KPN.

KPN believes that commercial negotiations with other operators is the best way forward to roll out a NGN network and offer new services to the end users. We also believe that:

- an open wholesale approach for a NGN is the best way to attract new platform providers to offer their services via the new network to end users. This is a profitable approach for both the network provider and the platform providers;
- NGN wholesale services can be offered in a non-discriminatory way so that the retail organisation of a vertically integrated NGN network operator is treated equally as a platform provider.

1.2 New networks: new regulation

The ERG Consultation Document is very much based on the assumption that current unbundling obligations of incumbent operators need to be mirrored in the new NGN situation. There have to be 'alternatives' for MDF access. This way of thinking overlooks that a NGN has its own architecture and should be considered on its own.

[1] See http://www.kpn-wholesale.com/cms/asp/doclist.asp?id=388

It is for example our view that WBA services offer many ways for wholesale customers to determine the quality parameters. This fulfils the demand of operators to determine their quality of retail service towards their end users in the new IP environment. So, while WBA is not exactly the same technological service as MDF access, it does fulfil the needs of operators to differentiate their services. In other words, regulators should not look for exactly the same technological characteristics for services in the new world of NGN networks as exist in the old world of circuit switching and copper loops.

We also believe that it is not reasonable to maintain an obligation to offer MDF access in the near future. Such an obligation raises the total costs of the industry and hence end user prices. At a certain moment in time, depending on market circumstances, this obligation should be abolished.

1.3 Alternative NGN networks should be in the scope of the consultation

KPN feels that the focus of the consultation is on fiber investments by the incumbent telecoms operator. If NGN network operators are viewed in a technology neutral way as (very) high speed broadband network operators (i.e. speeds beyond ADSL2+) it becomes apparent that cable networks and local fiber initiatives are also active in this market. KPN regrets that the ERG has chosen not to take cable networks into account in its Consultation Document. The decision for KPN to invest in NGN and its decision to offer a commercial portfolio of access services is driven by the presence of a cable network with national coverage.

Additionally, KPN supports the shift towards a more granular analysis of the geographic market and a departure from the notion of national markets.

1.4 NRA policy should not distort investment: regulatory clarity is important

KPN believes that regulatory certainty is important for investment decisions. KPN therefore invites the ERG to devise a clear set of principles for remedies. KPN believes such a roadmap would be of great significance as a basis for informed investment decisions by market firms.

Our own economic analysis suggests that such principles should include a requirement to allow value-based pricing and price differentiation at the wholesale level, combined with strict requirements for non-discrimination, if NGA investment is to maximise economic welfare.

2 The general approach

KPN has interpreted the approach described by the ERG as following three steps:

- Analyse the availability of "*an adequate competitive alternative [infrastructure] to wireline deployments of NGA networks*" (page 14);
- Assess the economics of deployment and business case for additional network operators;
- Incorporate results of economic analysis into market analysis.

KPN is in agreement with this approach and would like to add a number of observations on these steps.

2.1 Presence of alternative networks are crucial to the analysis

Given the differences in the presence of alternative infrastructure within the EC and the objective of the Consultation Document in providing guidance, it seems reasonable that the first step is mentioned in the Consultation Document, but not discussed extensively. As the ERG will be well aware, the presence of alternative high speed broadband networks such as cable[2] and a large number of FttX projects[3] will make a significant difference in the evaluation of the impact of NGA investment. From the perspective of KPN, we feel we are not the first to invest in NGA in the Netherlands with fiber and cable networks being able to offer speeds in excess our current offering based on ADSL 2+. More importantly, the presence of cable in the Netherlands is a main driver behind KPN's decision to deploy its All IP network and its decision to offer an Open Wholesale model.

The impact of the presence of a second network formed the central topic of a recent paper by the Dutch Centre for Economic Policy Research ("CPB")[4]. The paper looked at whether access regulation was required in a market where two vertically integrated (national) networks operated in order to avoid foreclosure of service providers with no or a limited network. The paper illustrates that – even for the case that one network is not open – the second network provider has an economic incentive provide access and not to foreclose. These results are driven by two constraints, which are met in The Netherlands: the presence of a competitive retail market and limited efficiency differences between networks. Based on the above, we believe the ERG is correct in making this the first step in the analysis.

2.2 Impact of cost sharing on economic assessment

With regard to the economics of deployment, our main observation is that the focus here is slightly limited in that it does not incorporate the fact that NGA is a new network. We appreciate that NGA investments that have a limiting effect on competition should be subject regulation. As ERG sets out in chapter 3 of the Consultation Document, a large portion of the investment is related to

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2 All cable operators in the Netherlands use the EURODOCSIS standard and are able to deliver broadband speeds up to 52 Mbit/s to subscribers

3 For current overview of FttX projects in the Netherlands and current plans, see: http://www.stratix.nl/documents/FTTH-B-C_overview_final.pdf

4 See CPB (2007) Next generation network, next generation regulation?, CPB Document 145, The Hague, May 2007 – via: http://www.cpb.nl/eng/pub/cpbreeksen/document/145/

trenching/ducting costs. However, the fact that these trenches are now opened means that all operators have an opportunity to join in and share costs. This is effectively what KPN has offered to alternative operators. The fact that operators are allowed to build their business before moving on to the next step of the investment ladder is defendable if the network of the operator with SMP was deployed many years before.

This is however not the case now. This implies that the decision which NGA investments can be replicated or whether access regulation is required is to large extent driven by the decision of other operators. If these decide not to deploy simultaneously and thus generate significant savings on trenching/digging costs, they can effectively enforce regulation while they had an opportunity to compete. Given the advantages of buying access in terms of flexibility[5], this presents a positive value to alternative operators and a negative value to the investor. KPN believes that the suggestions on duct sharing go some way in addressing this issue. However, these ignore the fact that the economic analysis of NGA investment will be flawed when the economically efficient response of alternative providers is ignored in the analysis. KPN believes that this element should be addressed as part of the economic analysis of NGA investment.

We are however concerned about the narrow focus of the Consultation Document. The document deals mainly with identifying additional obligations which are technically feasible and which might be imposed on SMP operators within the context of Markets 11 and 12. We believe that a much wider range of issues needs to be addressed before the ERG is in a position to develop a sound common position on principles for regulating NGA networks.

We would like to use this opportunity to bring forward our thoughts on the following key elements of a regulatory policy on investments in NGA networks:

- Evaluation of effects of innovative investments versus competition;
- Establishment of market definitions;
- Nature of price regulation if NGA operator has SMP;
- Conditions for withdrawal of legacy regulated products.

[5] Economic research illustrates the value of the flexibility to acquire access services when and where there is demand. For instance Hausman (1999) “The Effect of Sunk Costs in Telecommunications Regulation,” In: Alleman, James, and Eli Noam (eds). The New Investment Theory of Real Options and its Implications for Telecommunications Economics, Kluwer Academic Publishers, Boston, MA.

2.3 Investment in NGA versus effective competition

Various economic papers have highlighted the tension between competition and innovative investments[6]. In its discussion document on NGA regulation, Ofcom states that the central issue is about answering two questions[7]:

> *"How can Ofcom ensure that efficient incentives for investment in next generation access infrastructure are not distorted, either by existing regulation, regulatory uncertainty or anti-competitive behaviour?*
>
> *How can Ofcom ensure the continued promotion of competition once next generation access networks are in place? What risks, or opportunities, does next generation access pose for the level of competition?"*

It then goes on to highlight the tensions between answering these two questions

> *"There may be a degree of tension between these two questions: approaches that promote competition may reduce or distort operators' incentives to invest in next generation access infrastructure; whilst allowing higher returns for operators' investments in next generation access through regulatory forbearance could reduce competition."*

We agree with this analysis. We therefore believe that it is important that the ERG addresses these two questions and the tension between them. To do so we believe that the ERG will need to:

- Develop a single overall objective for regulating NGA
- Understand better the drivers and barriers to NGA investment
- Consider further how competition in the supply of telecommunications services to end users will develop with NGA
- Develop guidance on the likely regulatory remedies which NRAs might apply to NGA so as to reduce the regulatory uncertainty which currently surrounds it.

We discuss each of these points further below.

2.3.1 A single overall objective for regulating NGA

If, as Ofcom suggests, there is a trade-off between promoting competition based on NGA and enabling efficient NGA investment, then there is a need to consider:

- What overall objective function should the NRA attempt to maximise when it takes regulation decisions on NGA? The ERG might, for example, wish to consider the objective of maximising overall economic welfare;

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[6] See for instance Aghion, P., N. Bloom, R. Blundell, R. Griffith, and P. Howitt (2005): "Competition and Innovation: An Inverted U Relationship," *Quarterly Journal of Economics*, 120(2), 701–728.

[7] See Ofcom (2006) Regulatory challenges posed by NGA networks- discussion document , London, November 2006 – via: http://www.ofcom.org.uk/research/telecoms/reports/nga/

- What contribution do investment and competition make to increasing economic welfare? Investment in NGA opens up the possibility of a wider range of new high-speed applications with greater economic value, while competition might, depending on its form, lead to greater innovation, lower prices and/or greater cost efficiency.

Without a single overall objective function it is difficult to have a reasoned debate on the trade-offs involved and to regulate in a transparent and proportionate way.

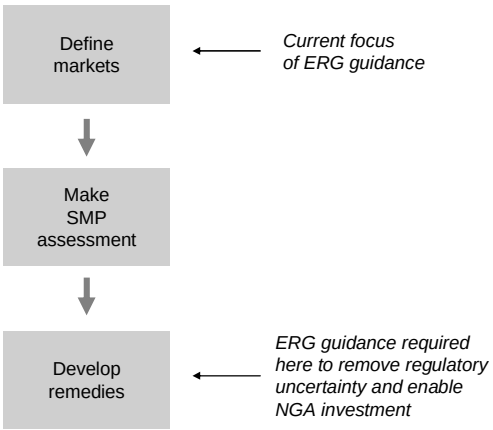
2.3.2 The drivers and barriers to NGA investment

The ERG report focuses on enumerating the technically feasible obligations which might be imposed on an SMP operator to enable use of NGA by rivals. This is important. But it is also important for the ERG to:

- Understand better the drivers and barriers to NGA investment
- Develop guidance on the remedies which NRAs might use in regulating the wholesale supply conditions for NGA
- From the evidence collected in the ERG country case studies and from other sources, it is clear that:
- Incumbent operators are well placed to invest in NGA, given their existing customer base and the access which they have to existing ducts and poles
- Most incumbent operators in the EU have extensive plans for NGA investment but have so far committed only limited capital expenditure
- Lack of regulatory certainty about the terms on which rivals will gain access to proposed NGA investment is a major barrier to gaining Board approval for these NGA investment plans.

In the context of the EU regulatory framework the current ERG document focuses guidance on Stage 1 of the regulatory process. But guidance is also required on Stage 3 if significant investment by the incumbent telcos is to be forthcoming. Figure 2.1 illustrates.

Figure 2.1 ERG guidance and incentives of NGA investment



2.3.3 The changing nature of competition

The ERG document does not explicitly address the issue of how the rollout of NGA (and associated core NGNs) might change the nature of competition. We think this is an important issue. An NRA should not, for example, regulate NGA so as to preserve existing business models of access seekers, but to enable those access seeker business models which best fit NGA and core NGN technologies. With the general deployment of NGNs we might expect to see major developments in competition such as the following:

- The roll out of NGA enlarges the enduring economic bottleneck. Long term it is not economically efficient to preserve the MDFs and copper loops along side the fibre NGA network. At the same time, SLU is not likely to be commercially viable in all areas So the viable point of interconnect closest to the end-user moves – from the MDF to the metro core node or core;
- The move to NGNs creates new opportunities for strong platform based competition. The roll out of the core NGN separates service control and intelligence from network conveyance. Service providers no longer need to roll out their own network to offer differentiated and innovative services to end-users. Instead they can simply connect their platforms to an incumbent's NGN to offer such services. This separation of network intelligence and conveyance shifts the main source of competitive innovation away from the infrastructure based competition associated with network ownership and towards platform based competition based on ownership of an NGN server. This represents a shift from intra-platform competition on the DSL-platform to more inter-platform competition between various NGA networks (VDSL, cable, FttX). This shift lowers the barriers to entry. It is much cheaper to deploy a platform or server than a network. So we can expect a wide range of new (and existing) services to be provided on a competitive basis.

At the same time existing infrastructure based competition will continue. WBA services will offer a great deal of the same capability to differentiate quality of service as MDF access can do, and these can also be provided on different network levels. So, WBA will not be the end of infrastructure competition. In addition infrastructure competition will also come from cable networks, new FttH initiatives and wireless technologies.

We suggest that the ERG should explore such developments and their consequences for the appropriate forms of NGA regulation.

2.4 The definition of markets for NGA supply

The EU regulatory framework requires, as its first step, the definition of distinct economic markets which may then be subject to ex ante regulation. The ERG refers in passing to the idea that the market for NGA-based products may be sub-national. But it does not consider this issue in detail. The experiences in the Netherlands suggest that it should.

- Investments in FttX projects in the Netherlands to date are all limited to specific areas such as business parks, housing estates or city neighbourhoods and are local;
- KPN has experienced that within the areas served by the NGA networks market shares can change rapidly; KPN suffered a significant loss of market share when a fiber project in the municipality of Nuenen was rolled out in 2004;

Theoretical arguments, together with empirical evidence from the Dutch market, suggest that:

- In some areas where there are major office and/or apartment blocks, we can expect significant infrastructure based competition in the supply of NGA based services as the available revenues within small geographic areas can support multiple operators;
- In other areas, such as those dominated by individual houses, once one player has rolled out NGA to an area, the chances that another player will do the same is much reduced. In these areas rival NGA investors compete to be first to fibre those areas with the highest willingness to pay, the winner then has an effective monopoly in the supply of NGA-based products in these areas and competition is for each local NGA market rather than in each local NGA market.

If this model is correct then NRAs will face a situation in which competition conditions are very different area by area, with a complex patchwork of areas with differing supply. In such circumstances the geographic extent of the market is limited and an NRA faces a number of challenging questions:

- How does the NRA define each area?
- What process should be used to decide when and how to regulate the various local monopolies? Competition for the market is a good way of stimulating innovative investment in NGA in areas where investment would otherwise not take place;
- On what grounds, if any, should an NRA discriminate between these monopolies? There is a danger for example that NRAs might focus regulation on the fixed incumbent who then decides not to invest. In this case the outcome may, at least in the short term, be a set of unregulated monopolies
- How can an NRA ensure that NGN service providers which want to offer nationwide service can gain access to all end users?

2.5 Guidance on pricing remedies

What form should any guidance on remedies take? The ERG Consultation Document remains (almost) silent on this question, although there are hints that it assumes cost oriented prices for NGA. For example:

> *"Service-based competition (using NGA) based on regulated access at **cost oriented prices**, can be (and generally is) the vehicle for long-term infrastructure competition" (page X)*

There are three issues to be addressed if regulation of NGA access at cost oriented prices is contemplated, in order to ensure that any remedies that are proposed are consistent with promoting efficient and timely investment.

The prospect of elevated returns which compensate for risk, and a high level of price flexibility is required at the access level to ensure timely and efficient investment. However, this does leave potential concern over scope for abuse of dominance where NGA is a bottleneck. Along with access competition, greater pricing flexibility would reduce incentives for vertical discrimination since some rent can be earned upstream (if efficient investment choices are made).
In the absence of infrastructure competition in some markets or locations further regulatory restraints may be required:

- To ensure non-discrimination (for example, by imposing a requirement for equivalence)
- To prevent pricing in excess of the level required to reflect information rents and promote efficient investment.

One option for addressing the latter concern in the absence of infrastructure competition, in the short to medium term, is the regulation of a small number of reference services (anchor product regulation[8]).

2.5.1 Incorporating a premium to reflect investment risk

First, since large up-front investment is required and demand for new services over NGA is uncertain, if ex ante price controls are introduced the allowed return would need to be significantly above the usual weighted average cost of capital to support investment. These characteristics make regulation of NGA very different from the access regulation which NRAs have developed to date, where the investment requirements have been modest and the demand and supply side uncertainties limited.

Ofcom, in their discussion document of November 2006 on NGA, pointed to this distinction:

> *"…if the standard approach to access regulation were to be adopted for future next generation access infrastructure, the returns available to the communications provider considering deploying the bottleneck assets may be reduced such that there may not be a commercial case for making the investment in the first place." 3.28*

There is now an established body of literature on this point, including the more recent literature that examines the problem using a real options framework.[9] If regulated cost oriented prices are proposed

[8] Indepen. March 2007. "Risk, reward and efficient investment in next generation access." http://www.indepen.co.uk/panda/docs/risk_reward_and_efficient_investment_in_nga_march-2007.pdf

then a proper assessment of risk, and the appropriate framework for taking it into account when irreversibility is involved, should be made (see Section 2.2).

This is in contrast with the current practice in the Netherlands, where OPTA has proposed to apply a WACC for SDF co-location, which is lower than the return included in the current portfolio of regulated wholesale products.

2.5.2 Allowing sufficient pricing freedom to promote efficient and timely investment

Second, even if overall returns under a price cap are sufficient to support NGA investment, investment may not be timely and efficient. The reason for this is that NGA investment is fundamentally a proposition about consumer value rather than cost reduction exercise *per se*. It is therefore important that investment decisions reflect the value that alternative approaches to NGA can deliver at different times and in different locations. An approach whereby price caps are set on the basis of costs could not be expected to lead to the socially efficient investment choices across a large portfolio of options. The key requirement for efficient and timely investment is that investors face both the risk and reward of alternative investment choices.

2.5.3 Ensuring flexibility at the wholesale access level

Third, in relation to the need for flexibility, it is important to note that the realisation of profits is required at the wholesale access level (as well as at the retail level). The reason for this is that, consistent with non-discrimination against alternative downstream service providers – as is currently the case for all WBA clients of KPN Wholesale - the investment case for NGA should be justified by anticipated access revenues rather than a particular share in the downstream service market. Further, price differentiation based on service levels (including bandwidth) is necessary to support efficient and timely investment and will only be sustainable if it is permitted at the access level.

Greater pricing flexibility at the wholesale level would also allow a vertically integrated NGA investor to take profit from the upstream wholesale products, thereby reducing any incentive to discriminate against rivals in the downstream markets (as demonstrated by KPN's decision to offer WBA on a non-discriminatory basis).

[9] See Pindyck (2004), "Mandatory investment and unbundling in telecommunications investment." NBER Working paper 10287, February 2004 – via: http://www.nber.org/papers/w10287.pdf

2.6 Conditions for the withdrawal of legacy products

The ERG document raises, but does not provide analysis of, the issue of what conditions to impose on incumbent telcos when they withdraw legacy products following NGA roll out. To quote:

> *"Stranding problems with regard to traditional local loop unbundling at the MDF may include…. phasing out of MDFs".*

We suggest that the ERG should consider this issue in developing any guidance for NRAs and, in doing so, should consider the following points:

- The withdrawal of MDFs does not represent regulatory stranding. Stranding requires the regulator to change the rules so as to lead to economic losses while constraining returns in the period leading up to the rule change. Neither of these conditions applies in the case of local loop unbundlers. In the case of NGA the withdrawal of the MDF is part of a technology upgrade which makes the assets of the investor and the local loop unbundler redundant in (roughly) equal measure. As such it represents an economic depreciation as opposed to a damage/expropriation;
- There are economic costs if the NGA investor is required to compensate the local loop unbundler for such a change. Investors should not be required to take account of compensation payments if they are to take efficient investment decisions. Compensation makes the investment case for NGA more difficult to justify, leading to delayed investment and economic loss;
- It is important to give the local loop unbundler appropriate notice of any change. The obvious starting point for determining this notice period is the period to which both parties agreed in the contract between them.

3 What are relevant roll-out alternatives for NGA?

KPN believes that the Consultation Document provides an extensive discussion of the different network architectures, which can be rolled out.

At the same time, we believe the scenarios described by the ERG in its document only partly reflect various other relevant elements. The case study evidence gathered by the ERG demonstrates that there is a great variety of different ways in which NGA is being rolled out. For example:

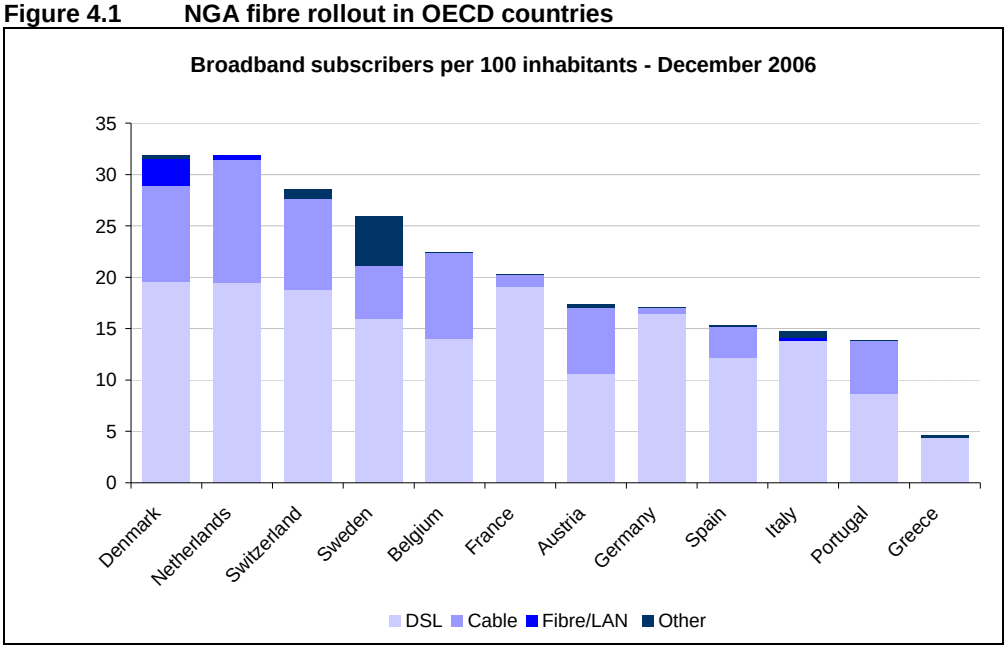
- Some investors are using fibre to the node technologies (such as VDSL). Others are rolling out fibre to the premises technologies (such as GPON);
- Some are using an overlay strategy (e.g. VDSL in Germany). Others have chosen a replacement strategy (e.g. KPN in the Netherlands);
- Many incumbent operators are now committed to rolling out fibre to the premises for all greenfield developments but not for the upgrade of network serving existing buildings (e.g. BT in the UK);
- Some of the investment in NGA is being made by vertically integrated incumbents who already offer a range of wholesale products for broadband access. But much of the investment is currently being made by other organisations.

The ERG document covers only the first of these four dimensions. Yet the other three are also important in determining what regulation is appropriate.

4 Conclusions on the economic and business case studies

It is not clear from reading the document what conclusion the ERG draws from the evidence it has collected on the economic and business case studies. Given the general formulation of the conclusions we find it difficult to answer this question. We are however surprised that the ERG country case studies do not include Denmark or Sweden, which are leaders within the EU in the deployment of NGA. See for example Figure 4.1.

Figure 4.1 NGA fibre rollout in OECD countries



Source: OECD

With regard to the structure and scope of the economic analysis of NGA networks and the ability of operators to replicate, we refer to the discussion on sharing costs of digging/trenching in Section 2.2.

4.1 Scale effects and demand pooling

A number of the reports included in the Consultation Document discuss the scale effect related to the fixed costs of SDF access. Thus the market share of the hypothetical SLU operator discussed in the reports plays an important role in the outcome of the business case. Given these effects, KPN expects operators to resell the service elements of SLU (in combination with SDF backhaul on their own network) in order to divide the fixed costs over a larger client base. A similar development has taken place with respect to WBA, where two alternative suppliers (Bbned, Tiscali) purchase MDF access and co-location and package this with their own backhaul to provide a complete WBA portfolio. The effect of demand pooling would be an effective increase in the size of the hypothetical operator and thus the outcome of the analysis. KPN would welcome the incorporation of this element into the business cases.

4.2 KPN's response to Analysys' report

With regard to the studies discussed, we would like to take share our comments on the study on the business case for SLU as commissioned by OPTA. KPN believes that the scope and set-up of the model leads to a situation where MDF access is per definition preferable to the other wholesale services discussed: SDF access and WBA. Additionally, Analysys has used assumptions for the calculation of the costs for deploying SDF backhaul which significantly exceed KPN's assumptions. The results from KPN's internal analysis show that there exists a modest difference between the costs for the different wholesale services required to offer retail broadband. If the analysis would be extended to include a number of additional qualitative comments, we believe a clear business case for SLU exists in large parts of the Netherlands. A copy of KPN's response to the Analysys study and the findings of our internal analysis are included in 6Annex A.

5 Regulatory implications and on the evolution of the ladder of investment

We find the ERG assessment of the impact of NGA on the ladder of investment confusing. The ERG appears to reach two conclusions:

- On the one hand it stresses the need to preserve the ladder of the investment. For example "*Therefore a number of different wholesale products on different rungs of the ladder are required to complement each other*" (page 46);
- On the other hand it agrees with the analysis by Cave[10] and others that the roll-out of NGA removes key rungs from the ladder.

KPN believes the investment ladder is a very useful theoretical concept, but sees limitation in its use as a policy guideline.

5.1 The investment ladder as a policy guideline

The investment ladder continues to play a central role in the design of regulatory remedies and again is incorporated in the ERG Consultation Document. From the viewpoint of KPN, one development illustrates the limitations of the investment ladder concept. The experience in the Netherlands and in other parts of Europe shows that FttX projects are initiated by organisations, which are not (yet) communication network operators. Examples from the Netherlands include various FttH projects initiated by housing corporations. Data by the FTTH Council also illustrate that municipal and public authorities play an important role. We believe these entrants show the contestability of network markets and the limitations of a focus on existing operators and their position on the investment ladder.

5.2 Investment ladder and the notion of "competition at the deepest level"

The ERG recognizes in its document that it is important to promote competition at the deepest level in the network where it is likely to be both effective and sustainable (page IX). But it does not offer any guidance on how to do this. The use of business cases in this analysis can be instrumental and form a valuable input to an analysis of the enduring economic bottleneck as the source of SMP. We suggest that the ERG should consider the four factors proposed by Ofcom for determining the appropriate level of access to NGA networks and should then require equality of access for all access seekers at this point. The four factors are as follows[11]. The NRA should consider where:

- NGA is technically feasible;
- NGA is practical;
- NGA is likely to be economic for the access seeker;
- NGA is likely to lead to competitive innovation.

[10] See Cave (2006), *The regulation of access in telecommunications*, Beazley Lecture, 26 October 2006

[11] See Ofcom (2006) Regulatory challenges posed by NGA networks- discussion document , London, November 2006, page 32

The ERG document provides a reasonably comprehensive analysis of the first three of these factors, but an unbalanced analysis of the fourth. On this point the document states that bitstream access "*reduces the freedom of the competitor to control quality parameters, compared to the local loop unbundling case*" (page VII).

KPN would like to stress that this statement by the ERG about bitstream access should be seen in the context of current ATM technology. In NGA networks wholesale broadband access services are offered over Ethernet. This enables flexibility in quality and functionality that matches MDF access. The new WBA offering represents an increase in functionality compared to the offering of WBA over ATM. As such wholesale customers of WBA over Ethernet have much flexibility in designing and offering their retail services.

Even if this would not be the case, there is a trade-off to be made here between:

- Access based on unbundled components which are close to the customer and/or at the physical layout of the ISO seven-layer model. Such access maximises the ability of the access seeker to differentiate the services it offers to end users in terms of speed and service quality characteristics. This in turn helps promote competitive innovation in access services
- Bitstream access at ISO layers 2 or 3 from a limited number of points of interconnect more distant from the end customer. Such access offers two main advantages over unbundled access in terms of strengthening competition:
    - It minimises the cost of end users switching service providers. The bitstream service can be software reconfigured to enable an end user to change service provider more quickly, cheaply and reliably than with services which involve the use of physical layer connections. This should strengthen competition at the services level.
    - It maximises the reach of a service provider. Instead of having to interconnect at each MDF in an incumbent network (in the case of local loop unbundling) the service provider can provide a ubiquitous nationwide service to all end-user sites from a single point of interconnect. This strengthens service based competition in both the mass markets, where service providers can mount more cost-effective national marketing campaigns, and in the corporate markets where ubiquitous access is important[12,13].

[12] Companies as consumers of telecommunications are very different from residential purchasers. Residential consumers generally require connections in one place (or in the case of mobile, a single connection). Large businesses, in order to implement and benefit from ICT systems, require multiple sites to be connected simultaneously. This is a requirement for ubiquitous connectivity.

[13] The Economic Benefits from Providing Businesses with Competitive Electronic Communications Services, BT, June 2007 – via: http://www.btplc.com/Thegroup/Regulatoryinformation/Consultativeresponses/BTdiscussionpapers/Electronic/Economicbenefits.pdf

Many NRAs are concerned that a monopoly supplier of access will have few incentives to innovate. As a result, they prefer unbundling solutions over bitstream solutions. This may be a valid analysis where a monopoly NGA supplier is subject to cost-based price regulation. But incentives change if the monopolist is regulated in a way which allows it to use value-based pricing and to share the rewards of innovation with the retailer (as we suggest in Section 2.5). In these circumstances the monopolist has strong incentives to innovate.

6 ERG conclusions

We agree with many of the ERG's conclusions. Specifically we agree that:

- There is a great variety in the way in which NGA is being rolled out – in terms of where, by whom and how;
- It does not make sense, long-term, to preserve the copper loop network and MDF alongside an NGA network;
- NGA rollout means that the access network is likely to remain a bottleneck in many geographic areas and therefore needs to be regulated;
- There is a range of obligations which might be imposed on operators with SMP in the supply of NGA. These include sub loop unbundling, location at and backhaul from the cabinet, duct sharing, a wider range of bitstream products, unbundled fibre loops, and symmetrical sharing of facilities.

However we also believe that:

- There is a need for the ERG to address the wider set of issues before attempting to develop a set of guiding principles for the regulation of NGA;
- The remedies identified by the ERG are technically feasible. But there is a need for consideration of the circumstances under which it makes economic sense to impose them on SMP operators;
- Given the desire of the ERG not to distort the incentives for efficient investment, any price-related remedies should be based on the following principles: high level of price flexibility at the wholesale and retail level and returns reflective of the higher risk at investment compared to current legacy networks;
- It is important for the ERG to keep to general principles and overall goals in its guidance and not to develop prescriptive remedies. It is important to consider detailed evidence in developing the guidance. But, given the enormous variation in the way NGA is being rolled out across the EU and the high levels of uncertainty in the way investments are being made, there is a high probability that any specific rules would lead to major unintended consequences.

Annex A

KPN's response on Analysys report

Analysys study on Subloop unbundling in The Netherlands

"Do the results constitute a realistic case ?" / Remarks and comments by KPN

Introduction

On January 26th 2007 OPTA published a study from Analysys Consulting Ltd, titled "The business case for sub-loop unbundling in the Netherlands".

The objective of the study is to compare the business cases for the supply of retail broadband services using three different wholesale inputs:
(1) access to local exchanges ("MDF access");
(2) wholesale broadband access ("WBA"); and
(3) access to street cabinets ("SDF access").

Analysys concludes that there exists no commercially viable opportunity for other service providers than KPN to offer retail broadband services based on SDF access.

The model itself was published on April 18th. KPN analyzed the model and its assumptions. KPN has come to the conclusion that several key elements and assumptions in the business case do not reflect the Next Generation Network and related cost and price elements as KPN expects. This paper discusses the main differences.

Scope of the study

The question that the study tries to answer is whether a migration from MDF acces to SDF acces would economically make sense for existing MDF Telco's with a total market share of 10%. One of the assumptions in comparing the costs of various wholesale inputs is that the costs already incurred for using MDF access are sunk and are therefore not included in the comparison with the alternative wholesale inputs being WBA and SDF access.

The study thus has an exclusive focus on existing MDF Telco's and contains no analysis from the perspective of a new-entrant DSL Telco. In the view of KPN this scope is too limited because in our view the scope of the study should be how the nature of competition will look like after a transition to All-IP, a transition that is market demand related and therefore necessarily in the view of KPN in order to prepare in time for where end-user demand is going but also to remain competitive against other infrastructures like cable. In general, we believe the scope of the study should therefore be extended to look at competition in general and not a selected number of competitors. More specifically, the comparison of business cases should be done looking at all costs and not ignoring costs which were incurred in the past.

Static market demand for next 13 years leads to unrealistic results

One of the factors in the model that has significant impact on the results and the conclusions is the length of the study period and the assumed stability of the market demand for bandwidth during that period. This study period has a length of 10 years and in addition a residual value based on 3 years extension of the last year cost base is being used. Also the external market is assumed to be stable for the next 13 years, including the residual value period.

Of course making forward looking demand projections has a high degree of uncertainty, but the past has taught us that the demand for bandwidth has increased dramatically. In 1994 internet access had a low penetration and was offered only as dial-in services, based on 56kbps or in smart cases on double ISDN i.e. 128 kbps. In 2007 the Netherlands has a broadband internet access penetration of some 70% (on households) and access speeds for the majority are 1 Mbps and faster. Concluding that not only the actual demand has been multifold, but at the same time average bandwidth offered has increased at least by 10 times.

The model assumes that while KPN, local FttH operators and cable operators continue to offer higher bandwidth to residential and business users, this will not affect the market share of service providers which continue to use MDF access and as such cannot match these higher bandwidths.

Apparently, in the view of Analysys, the decision to go for higher bandwidths does not have any impact on the market share of MDF based business models for the next 10 years or longer. If that were the case it would not make sense for KPN either to make that move. The reaction from analysts and investors in the sector however give KPN the confidence that investing in higher bandwidths is the right answer to being able to keep up where end user demand might be going and needed to live up to the competitive threat from other infrastructures like cable and local fiber initiatives. Under the assumption that Cable, local fiber initiatives and KPN will move to higher bandwidths, a market share loss for MDF based business models is inevitable and therefore the cash generating potential of these business models will come to an end, or at least decrease significantly.

This central assumption of static demand for ‘low-end’ broadband services from the modeled operator has a number of consequences for the outcome of the study.

First of all, the assumption ignores that the ADSL-technology used in combination with MDF access may not be able to supply the market demand for higher bandwidths.

Secondly, this static forecast of demand for ‘low-end’ broadband services constitutes a - per definition - disadvantage for the rental case of KPN’s offer of WBA. The advantages of the flexibility of being able to use KPN’s WBA are by no means taken into account in the study.

Model overstates the costs for SDF backhaul

The overall conclusion of Analysys' study is to a large extent based on the assumption that the costs of SDF Backhaul form a large part of the costs of the business case for SDF access. KPN understands from the model and the report that this conclusion is based on two assumptions.

First of all, the model uses the list price for SDF access from KPN. KPN has indicated that the prices quoted were list prices and were negotiable. Subsequently, KPN has entered into negotiations with multiple service providers interested the SDF access services.

Secondly, the costs of self-supply of SDF backhaul (i.e. the investment) mentioned as an alternative to KPN's offering is based on incorrect assumptions. The assumption of the costs of SDF backhaul is 3 to 5 times higher than KPN uses in it's own All-IP business case. This is caused partly because of the assumption of the cable lengths (too long) and partly because costs per unit for digging and ducting are set too high. The robustness of the assumptions could have been cross-checked if these estimates would have been used to estimate the costs for SDF access for KPN. The incorrect use of these assumptions seems to lead Analysys to conclude that no possibilities exist for other operators to operate a SDF backhaul at costs below KPN's list prices. Our own analysis shows that this possibility does exist.

Original and Revised results

To reflect the comments made in the paragraphs above, a number of quantitative changes were made in the model prepared by Analysys.

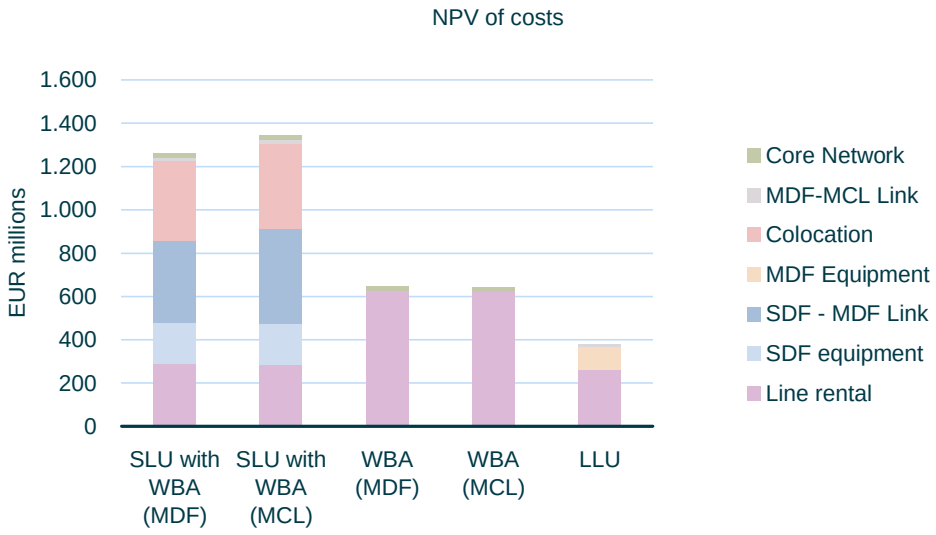


Figure 1: original Analysys results

Starting from the original results KPN has done the following recalculations:

1. SDF backhaul : redoing the two assumptions mentioned above leads to new costs for the SDF – MDF link.
2. Colocation: Regulated prices from OPTA's draft decision (27-4-2007) applied.
3. Market demand can not be assumed to be stable for 13 years ➔ KPN calculated the impact on the NPV of an assumed annual 10% loss in the installed base of the MDF telco's given unchanged ARPU's. This effect alone is enough to bridge the gap in NPV between staying in the MDF and moving towards the WBA proposition from KPN and is coming close to building a business case based on SLU. See the yellow area in the box at the right below.

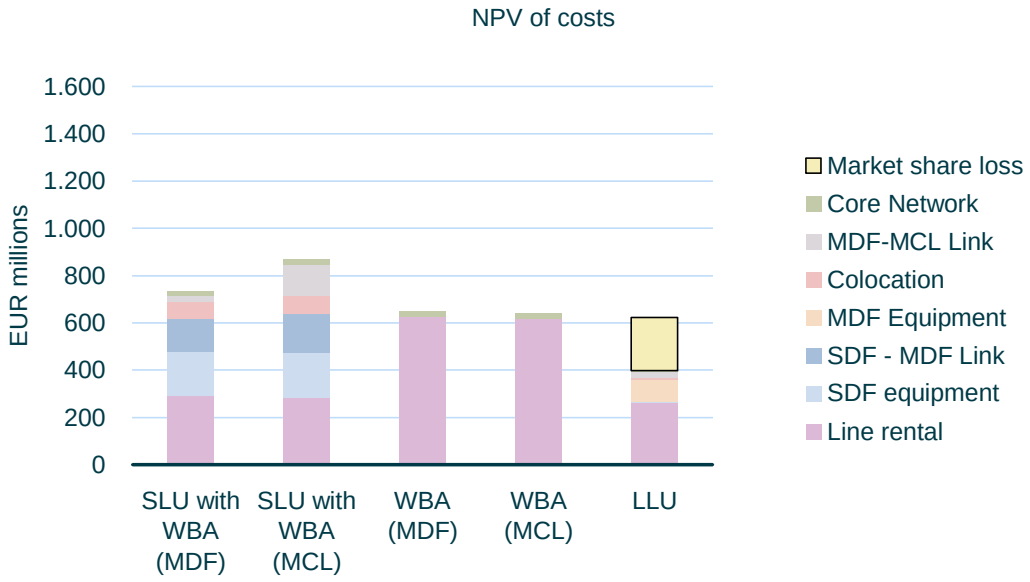


Figure 2: KPN revised results Analysys study

Conclusions

Based on the above, it can be concluded that the set-up of the study and key input parameters inevitably lead to the conclusion that MDF access is the only commercially viable wholesale input for offering retail broadband services.

We conclude that the business case for SDF access is more positive compared to the conclusions by Analysys. Our conclusion is based on:

- The latest OPTA-approved SLU collocation rates
- Lower SDF backhaul costs (assuming self-building of the SDF-MDF link)
- An assumed market share loss of 10% per year for MDF-telco's that decide to stay at the MDF

Internal analysis indicates that when the set-up of the study is changed towards a more like-for-like comparison of business cases, the outcome changes significantly. As such, the model displays a significant sensitivity towards the assumptions used in setting it up. Including some analysis of this sensitivity would in itself have been commendable.

The revised outcomes indicate that the differences between the costs of providing retail broadband services using the different wholesale inputs are much smaller as suggested in the Analysys report.

Any subsequent qualitative study of the aspects of the different wholesale inputs would confirm that there is a clear imperative for the hypothetical service provider to choose SDF access as the preferred wholesale input for providing retail broadband services.